

1 **In the Claims**

2
3 Claims 20, 29, 34, 35 and 38 are amended.

4 Claims 1-38 remain in the application and are listed as follows:
5

SUB B17
6
7 1. (Original) A system for synchronizing a visualization with audio
8 samples comprising:

9 one or more audio sources configured to provide audio samples that are to
10 be rendered by a media player;

11 an audio sample pre-processor communicatively linked with the one or
12 more audio sources and configured to receive and pre-process audio samples
13 before the samples are rendered, the pre-processing providing characterizing data
14 associated with each sample; and

15 one or more effects configured to receive the characterizing data and use
16 the characterizing data to render a visualization that is synchronized with an audio
17 sample that is being rendered by the media player.
18

19 2. (Original) The system of claim 1 further comprising multiple data
20 structures configured to hold the characterizing data, each data structure being
21 associated with an audio sample.
22

23 3. (Original) The system of claim 2, wherein the audio sample pre-
24 processor is configured to maintain the data structures.
25

1 4. (Original) The system of claim 2, wherein the audio sample pre-
2 processor comprises a timestamp module that provides a timestamp for each audio
3 sample, each timestamp being maintained by a data structure associated with the
4 audio sample.

5
6 5. (Original) The system of claim 4, wherein the timestamp is assigned
7 by the timestamp module based upon when the audio sample is calculated to be
8 rendered by the media player.

9
10 6. (Original) The system of claim 4, wherein the audio sample pre-
11 processor is configured to:

12 query a media player audio sample renderer for a time associated with an
13 audio sample that is being currently rendered, and

AI 14 use the time to ascertain a timestamp of an associated audio sample, the
15 audio sample pre-processor further being configured to provide characterizing data
16 of the associated audio sample so that the characterizing data can be used to render
17 the visualization.

18
19 7. (Original) The system of claim 1, wherein said characterizing data
20 comprises frequency data.

21
22 8. (Original) The system of claim 1, wherein said audio sample pre-
23 processor comprises a Fast Fourier Transform that it utilizes to process the audio
24 samples to provide frequency data associated with the audio samples.

1 9. (Original) A media player comprising:

2 an audio sample pre-processor configured to receive and pre-process audio
3 samples before the samples are rendered by the media player, the pre-processing
4 providing frequency data associated with each sample; and

5 one or more effects configured to receive the frequency data and use the
6 frequency data to render a visualization that is synchronized with an audio sample
7 that is being rendered by the media player.

8
9 10. (Original) The media player of claim 9 further comprising multiple
10 data structures configured to hold the frequency data, each data structure being
11 associated with an audio sample.

12
13 11. (Original) The media player of claim 10, wherein the audio sample
14 pre-processor comprises a timestamp module that provides a timestamp for each
15 audio sample, each timestamp being maintained by a data structure associated with
16 the audio sample, and further wherein the audio sample pre-processor is
17 configured to:

18 query a media player audio sample renderer for a time associated with an
19 audio sample that is being currently rendered, and

20 use the time to ascertain a timestamp of an associated audio sample, the
21 audio sample pre-processor further being configured to provide frequency data of
22 the associated audio sample to the one or more effects so that the frequency data
23 can be used to render the visualization.

1 12. (Original) The media player of claim 9, wherein the audio sample
2 pre-processor pre-processes the audio samples by using a Fast Fourier Transform
3 to provide the frequency data.
4

5 13. (Original) A system for synchronizing a visualization with audio
6 samples comprising:

7 an audio sample pre-processor configured to receive and preprocess audio
8 samples before the samples are rendered by a renderer that comprises part of a
9 media player, the audio sample preprocessor preprocessing the samples to provide
10 characterizing data associated with each sample, the characterizing data
11 comprising a timestamp associated with each audio sample, the timestamp being
12 assigned in accordance with when the audio sample is calculated to be rendered by
13 the renderer;

14 multiple data structures configured to hold the characterizing data, each
15 data structure being associated with an audio sample;

16 an audio rendering object configured to call the audio sample pre-processor
17 to ascertain the characterizing data associated with an audio sample that is
18 currently being rendered by the renderer;

19 the audio sample pre-processor being configured to ascertain said
20 characterizing data by querying the renderer for a time associated with the
21 currently-rendered audio sample, and then using said time to identify a data
22 structure having a timestamp that is nearest in value to said time; and

23 one or more effects configured to receive characterizing data that is
24 associated with the data structure having the timestamp that is nearest in value to
25

1 said time, and use the characterizing data to render a visualization that is
2 synchronized with the audio sample that is being rendered by the renderer.

3
4 14. (Original) The system of claim 13, wherein the characterizing data
5 comprises frequency data.

6
7 15. (Original) The system of claim 13, wherein the audio sample pre-
8 processor comprises a Fast Fourier Transform that it utilizes to process the audio
9 samples to provide frequency data associated with the audio samples.

10
11 16. (Original) The system of claim 13, wherein the visualization is
12 rendered in a rendering area in which other media types can be rendered.

13
14 17. (Original) The system of claim 16, wherein the other media types
15 comprise a video type.

16
17 18. (Original) The system of claim 16, wherein the other media types
18 comprise a skin type.

19
20 19. (Original) The system of claim 16, wherein the other media types
21 comprise a HTML type.

22
23 20. (Presently Amended) The system of claim 16, wherein the other
24 media types comprise a an animation type.

AI

21. (Original) A system for processing audio samples comprising:
a timestamp module for assigning timestamps to audio samples that are to
be rendered by a media player renderer;
a spectrum analyzer for processing the audio samples to provide frequency
data associated with the audio samples;
multiple data structures each of which being associated with an audio
sample, the data structures each containing timestamp data and frequency data for
its associated audio sample; and
the system being configured to use the timestamp data to ascertain a data
structure associated with an audio sample that is currently being rendered by the
media player renderer and provide the frequency data associated with that audio
sample so that the frequency data can be used to render a visualization associated
with that audio sample.

22. (Original) The system of claim 21, wherein the spectrum analyzer
comprises a Fast Fourier Transform that is utilized to provide the frequency data.

23. (Original) A method of providing a visualization comprising:
receiving multiple audio samples;
pre-processing the audio samples before they are rendered by a media
player renderer, the pre-processing providing characterizing data for each sample;
determining when an audio sample is being rendered by the media player
renderer; and
responsive to said determining, using the characterizing data that is
associated with the audio sample that is being rendered to provide a visualization.

1
2 24. (Original) The method of claim 23 further comprising maintaining
3 characterizing data for each audio sample in a data structure associated with each
4 audio sample.

5
6 25. (Original) The method of claim 24, wherein the characterizing data
7 comprises a timestamp associated with the audio sample, the timestamp being
8 provided based upon when the audio sample is calculated to be rendered by the
9 media player renderer.

10
11 26. (Original) The method of claim 25, wherein said determining
12 comprises:

13 ascertaining a time associated with a currently-rendered audio sample;
14 selecting a data structure having a timestamp that is nearest the time; and
15 providing characterizing data associated with the selected data structure to a
16 component configured to provide the visualization.

17
18 27. (Original) The method of claim 23, wherein the characterizing data
19 comprises frequency data associated with each sample.

20
21 28. (Original) The method of claim 23, wherein said pre-processing
22 comprises using a Fast Fourier Transform to provide frequency data associated
23 with the samples.

1 29. (Currently Amended) A method of providing a visualization
2 comprising:

3 receiving multiple audio samples;

4 pre-processing the audio samples before they are rendered by a media
5 player renderer, the pre-processing comprising at least (1) using a Fast Fourier
6 Transform to provide frequency data associated with the samples, and (2)
7 associating a timestamp with each sample;

8 maintaining frequency data and a timestamp for each sample in a data
9 structure;

10 determining when an audio sample is being rendered by a media player
11 renderer by:

12 ascertaining a time associated with a currently-rendered sample; and

13 selecting a data structure having a timestamp that is nearest the time; and

AI 14 providing ~~characterizing~~ frequency data associated with the selected data
15 structure to a component configured to ~~provide~~ use the frequency data to render
16 the visualization.

17
18 30. (Original) One or more computer-readable media having computer-
19 readable instructions thereon which, when executed by a computer, cause the
20 computer to implement the method of claim 29.

21
22 31. (Original) A method of providing a visualization comprising:

23 calling an audio sample pre-processor for characterizing data that is
24 associated with an audio sample that is currently being rendered by a media player
25 renderer;

1 calling the media player renderer for a time associated with a currently-
2 rendered audio sample;
3 using the time to select a data structure containing characterizing data
4 associated with the currently-rendered audio sample; and
5 providing the characterizing data to a component for rendering a
6 visualization.

7
8 32. (Original) The method of claim 31, wherein the characterizing data
9 comprises frequency data associated with the audio samples.

10
11 33. (Original) The method of claim 31, wherein the characterizing data
12 comprises frequency data associated with the audio samples and generated by pre-
13 processing the audio samples using a Fast Fourier Transform.

14
15 34. (Currently Amended) One or more computer-readable media having
16 computer-readable instructions thereon which, when executed by a computer,
17 cause the computer to:

18 pre-process audio samples using a Fast Fourier Transform to provide
19 frequency data, the audio samples being pre-processed before they are rendered by
20 a media player renderer;

21 query for frequency data that is associated with an audio sample that is
22 currently being rendered by the media player renderer;

23 query for a time associated with the currently-rendered audio sample;

24 use the time to select a data structure containing frequency data associated
25 with the currently-rendered audio sample; and

1 provide the frequency data to a component ~~for~~ that uses the frequency data
2 for rendering a visualization.

3
4 35. (Currently Amended) A method of providing a visualization
5 comprising:

6 defining a frame rate at which visualization frames of a visualization are to
7 be rendered, the visualization frames being rendered from characterizing data that
8 is computed from audio samples and which is used to create the visualization;

9 setting a threshold associated with an amount of time that is to be spent
10 rendering a visualization frames;

11 monitoring the time associated with rendering individual visualization
12 frames;

13 determining whether a visualization frame rendering time exceeds the
14 threshold; and

15 providing an effective frame rate for rendering visualization frames that is
16 longer than the defined frame rate if the determined visualization frame rendering
17 time exceeds the threshold.

18
19 36. (Original) The method of claim 35, wherein said providing
20 comprises increasing a call interval associated with calls that are made to a
21 visualization-rendering component.

22
23 37. (Original) The method of claim 35 further comprising modifying the
24 effective frame rate so that the visualization frames are rendered at the defined
25 frame rate.

1
2 38. (Currently Amended) One or more computer-readable media having
3 computer-readable instructions thereon which, when executed by a computer,
4 cause the computer to:

5 set a threshold associated with an amount of time that is to be spent
6 rendering a visualization frame for a given frame rate, said visualization frame
7 being associated with a visualization that is rendered using characterizing data
8 computed from audio samples, which characterizing data is used to create the
9 visualization;

AI
10 monitor the time associated with rendering individual visualization frames;
11 determine whether a visualization frame rendering time exceeds the
12 threshold; and

13 provide an effective frame rate for rendering the visualization that is longer
14 than the defined frame rate if the determined visualization frame rendering time
15 exceeds the threshold.
